The Latest Across the Plains

Unused Feed

"You don't need a new day to start over, you only need a new mindset." - Hazel Hira Ozbek

Save Money $$$ Test Your Feeds

Tests are relatively inexpensive, usually costing less than $18, for the information derived. Contact our office to set up an appointment to have us pull feed samples if we have not done so yet.

We want to hear from you…

Do you have a question you would like one of the nutritionists to address in depth in our newsletter? Just submit your question through our website www.GPLC-Inc.com and we will get to work on it.

Timely Reminders

- Use at least two methods of fly control.
- Deworm cows and bulls with an injectable or drench de-wormer.
- Semen test bulls and make sure they have an adequate ration including mineral.
- Review your heat synchronization program and time-line.
- Put up shades.
- Make sure that waterers have enough space, recharge rate, and are cleaned weekly.
- Review your implant program with us.
- Review rations with current feed costs.
- Keep pens scraped.
- Implant suckling calves going to pasture.

The Importance of Accurate Feed Dry Matters

All feeds are composed of two parts, dry matter (DM) and water. The DM portion of feed is composed of protein, fat, carbohydrates, vitamins and minerals. The amount of water (i.e. moisture) present in a feed is highly variable. To remove the variation, we formulate all rations on a DM basis, which means having accurate DM's on your feed ingredients is very important.

For example, if we formulated a ration for you that targeted 20% corn silage on a DM basis but the dry matter of the silage used in our formulation was off by 10 percentage points, that would throw off the pounds of silage the cattle were getting (Table 1). This means the ration is no longer balanced the way we had intended.

Table 1. Impact of Corn Silage Dry Matter Variation on the Pounds As-Fed of Corn Silage in the Bunk in Rations formulated to containing 20% Corn Silage on a DM basis.

Sample ID	%DM	Lbs. as-fed
Silage 1	35%	20 ÷ 0.35 = 57 lbs.
Silage 2	45%	20 ÷ 0.45 = 44 lbs.
Difference		**13.0 lbs.**

Having accurate DM's also influences the price of your ingredients. For example, let's look at a price comparison of modified distillers grains (MDG) at two different DM's. Let's say you can get MDG for $110/ton (as-fed basis). The guaranteed DM on the distillers is 46%, which means

the MDG is $239/ton (DM basis). If that DM was 40% instead of 46%, then the MDG is actually $275/ton (DM basis). That is a $36/ton difference in cost on a DM basis. To put that on a bushel basis, that $36/ton difference is like paying an additional $1.00 per bushel.

For these reasons, we recommend testing dry matters on ensiled feeds and wet by-products often to ensure we are formulating your rations correctly. There are a multitude of ways to test the dry matter on your feeds.

The first and likely easiest method is to **have a GPLC consultant or field representative come out and pull feed samples** for you. The typical analysis package we have conducted on feeds is relatively inexpensive (~$18 per sample) for the information it provides. If the full nutrient profile is not needed, a sample can be submitted for just DM analysis.

Another option is conducting a **microwave dry matter** at home. You should never leave a feed sample drying in the microwave unattended because the feed sample could catch on fire if the sample is not stirred frequently. In addition, you may want to purchase your wife flowers if you plan on using the microwave to dry feeds because there is typically a residual smell and/or mess.

The third option is conducting a **koster tester dry matter**. This method would require the purchase of a koster drying system which would cost you approximately $450 if you purchase the system and scale (https://buykoster.com/shop). If you are looking to test the dry matter of a feed with a small particle size, make sure to check and see if the feed will sit in the drying pan without falling through, otherwise you will lose sample and have an inaccurate DM.

We only went over a few methods for testing dry matter on your feeds in this article. There are more, however, these options are likely the most economical and practical methods to use on farm without spending a substantial amount of money on equipment. The protocols for both the microwave and koster tester dry matters can be found on our website (https://www.gplc-inc.com/formuladocuments/). As always, do not hesitate to reach out to one of our consultants if you have any questions regarding the dry matter content of your feeds!

Mold and Mycotoxins in Corn Silage

Corn silage is a high energy forage crop that has become a staple in rations today. Its high moisture content (approximately 65% moisture) makes it predisposed to oxidation if not put up correctly so it is important to properly put up and store it to make sure that you capture its full value. There are a multitude of ways that silage can be stored practically, with pros and cons to each ensiling method; however, all methods have the same overall goal of eliminating the presence of oxygen from the harvested feed and keeping it out. Oxygen exposure causes secondary fermentation which can lead to mold and mycotoxin production ultimately resulting in a range of production and health problems.

The three storage molds commonly found in corn silage are *Monascus ruber, Aspergillus fumigatus,* and *Penicillium roqueforti.* These molds can be visibly identified by their color: *M. ruber* is red surrounded by white*, A. fumigatus* is yellow/green, and *P. roqueforti* is green/blue. Molds can reduce feed nutritional value, palatability, and bunk life. Additionally, some of the molds can produce toxic secondary metabolites known as mycotoxins. The primary mycotoxins found in corn silage are aflatoxin, deoxynivalenol (DON), zearalenone, T-2 toxin, fumonisin, and ochratoxin. The consumption of feed containing mycotoxins is rarely fatal, but they can cause reduced intakes, poor growth, impaired reproductive performance, and other health consequences if fed at high enough levels.

The goal with harvesting silage is to preserve the nutrients in the corn plant for feeding at a later time, and eliminating the presence of oxygen in the bunker, bag, or tower it is stored in. This can be done by following these important harvesting and management guidelines:

1. **Optimum harvest time.** This ensures that the silage is the correct moisture and maturity. It is common practice for farmers to chop silage shortly after corn has reached the dent stage; however, this can vary widely depending on the corn hybrid planted and weather patterns. The most accurate method in determining when to harvest is to measure whole plant moisture content. This is done by sampling at least 10 plants from the field, chopping the plants and pulling a representative sample from the mix. A Koster Tester™, microwave, or lab can then be used to determine percent dry matter of the sample. The correct moisture to harvest at is dependent on the storage method used. Recommended moisture contents for corn silage based on storage method are: horizontal bunker silos 65-70%, bag silos 60-68%, and tower silos 62-67%. Harvesting in a timely manner ensures that the crop is not left standing in the field any longer than it should be.
2. **Ensuring your chopper knives are sharp and cutting at the correct length.** A recommended cut length for processed silage is 3/4 inch with a 1-2 mm roller clearance. The recommended cut length for unprocessed silage ranges from 3/8 to 3/4 of an inch.
3. **Match the silo size to the herd size you are feeding.** This ensures that the daily removal of silage is faster than deterioration. An example is if you have 100 cows consuming 45 lbs. of silage per day then the face should be no more than 6 feet high and 40 feet wide.
4. **Mix in additives prior to ensiling.** Inoculants do not decrease any mycotoxins that are already present in the crop. However, they can help eliminate mycotoxin production during the ensiling phase.
5. **Correctly packing your corn silage.** General silage packing guidelines suggest packing densities should be at least 15 lb DM/ft ^{3} or 44 lb fresh matter/ft ^{3}. Packing density can be maximized by spreading thin layers, about 6 inches thick, of fresh forage from each truck load.
6. **Cover your silage pile**. The cover should be applied once the pile has been packed. Shrink (loss of carbon/moisture) of an uncovered pile is 20-50%, while a covered pile only has 10-20% shrink, which has a significant economic impact. For example, if you reduce shrink from 25% to 15% with a cover/barrier and have $4.00 corn, you save $5.05/ton on 1,200 tons, meaning you save $6,060 per pile for a $1,000 tarp.
7. **Proper silage face management.** Silage that has been exposed to oxygen should be removed within 24 hours. The feed out face should have a smooth surface with no cracks and be perpendicular to the floor. A smooth perpendicular face reduces the surface area being exposed to oxygen by up to 9%, risk for avalanches, and water being caught during rainy periods. It is recommended to remove 6-12 inches per day during the cold season and 18 inches per day during the warm season. Avoid leaving loose silage at the base of the face after feeding is done, as it is exposed to the sun and oxygen and will undergo secondary fermentation. Only uncover the amount of silage that will be used in a short amount of time (no more than three day's feeding).

In addition to putting up good quality corn silage this year, there are a few agronomic factors you can consider as you plan for next years spring planting season that can impact the quality of silage harvested in the future.

1. **Soil fertility**. Having balanced soil fertility helps to reduce stress on the plant and reduces the chance of disease development. Excess or low amounts of nitrogen can increase risk of stalk rot. Excess nitrogen is an even greater problem when soil potassium levels are low. Low potassium levels, independent of nitrogen availability, can increase the risk of stalk rot which can

lead to the production of mycotoxins.

2. Hybrid selection. Selecting your corn hybrid based on soil type and disease risk can greatly reduce plant stress and disease pressure, which in turn reduces the risk of mycotoxin development. Future hybrids may be able to reduce or eliminate mycotoxin formation through the development of transgenic crops.
3. Tillage and crop rotation. No-till or minimal till systems that leave excess corn residue on the soil surface offers an overwintering host that produces numerous mold spores for the subsequent crop. This is where crop rotation to a non-susceptible crop becomes important in conservation tillage systems to reduce disease pressure on the subsequent silage crop. On the other end of the spectrum, excessive tillage can reduce soil aggregation which lowers nutrient and water-holding capabilities, increasing risk of stalk quality issues.
4. Fungicide application. This helps control leaf diseases, which in turn helps to delay the reduction of stalk nutrients and the stalk becomes less predisposed to developing disease. Applying a foliar fungicide helps to preserve the nutrient quality of corn silage and protects the plant from foliar diseases. In 2015, Mycogen Seeds did a trial examining the impact of foliar fungicide application on corn silage yield and quality. At the time of the study, northern corn leaf blight, eyespot, and other leaf pathogens were present. Fungicides used in this trial were Fluxapyroxad, Pyraclostrobin, and Metconazole. Results showed fields treated with fungicide had higher yields than untreated fields. They found that for every dollar spent on fungicide application, there was roughly an $80 return over the cost of fungicide.

If you are concerned about molds and/or mycotoxins in your corn silage, we suggest you get it tested to make sure it is safe to feed. A representative sample should be taken, and the sample should be sent to the lab as soon as possible to prevent the formation of mycotoxins if the sample is allowed to heat or is exposed to oxygen. Toxin analysis and mold identification can be costly, so work with your nutritionist to determine if an analysis is needed and if so, which one to use. If you have questions about your silage management or would like to have a sample submitted for analysis, please contact one of our consultants, we would be happy to assist you.

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